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Physical activities as a manner of lifelong developing creativity

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Abstract

Problem Statement: "Creativity, specific to human beings, is of a vital importance in the evolution of culture and society, was considered for a long period of time, a quality or a characteristic which, *mysteriously*, was given to a person" (Horst H. S., 2000, p. 99). Today, as a result of research undertaken, this capacity is recognized as a "personality factor existing in any one of us" (Horst H. S., 2000, p. 99) in a smaller or bigger proportion, according of one's stimulation or practice upon it. Evaluation of creativity can be done through several tests. These tests can determine: the wealth of the lexical fund, the fluidity of lexical association, divergent thinking, visual creativity, etc.). In the present study, in order to demonstrate the hypothesis, we have chosen to evaluate the richness of the lexical fund and fluidity of lexical association, each addressing other dimension of the creative power of individuals and how this creative dimension is influenced by the participation or lack of it at physical activities within physical education lessons. **Purpose of Study:** This research has started from the hypothesis according to which people who constantly participate at physical activities have a much developed creative capacity, as compared to those who refuse to make effort and have medical exempts. This research has been realised on a group of students involved in the educational process from the Petroleum-Gas University in Ploiesti. **Research Methods:** Bibliographic study method; observation method; investigation method (conversation, questionnaire, scale Fl, scale Al, etc.); pedagogical experiment method; statistical-mathematic method; graphical method. **Findings and Results.** Creativity is the recombination of concepts that existed or still exist in the human mind, hidden in the subconscious and which could be activated as needed. Creativity seems to be more developed in people who regularly participate in physical activities. **Conclusions and Recommendations:** It is widely known that innovation can not exist outside creativity. On a market that can not be satisfied, creativity and intelligence are very rare qualities, sought in all areas of activity, being very well paid. For this reason we believe that the proposed theme is very new in the research field, that it opens new research perspectives and the statement that physical activities stimulate creativity, values it and represent a manner of lifelong training-learning, thus confirming the hypothesis. As a consequence, we recommend the existence of physical education lessons even since kindergarten.

Keywords: creativity, physical activities, lifelong, lexical fund (scale Lf), lexical association, students.

1. Introduction

Creativity is the recombination of concepts that have existed or already exist in the human mind, hidden in the subconscious, and that may be influenced by motric activities through the means of the motric chain which is derived from the motric act. The recombination of concepts could be activated according to one's necessities. "Creativity, specific to human beings, is of a vital importance in the evolution of culture and society, was considered for a long period of time, a quality or a characteristic which, *mysteriously*, was "given to a person" (Horst H. S.,

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2000, p. 99). Today, as a result of research undertaken, this capacity is recognized as a "personality factor existing in any one of us" (Horst H. S., 2000, p. 99) in a smaller or bigger proportion, according of one's stimulation or practice upon it.

2. Hypothesis

This research has started from the hypothesis according to which people who constantly participate at physical activities have a much developed creative capacity, as compared to those who refuse to make effort and have medical exempts.

3. Methods

3.1. ***Subjects***

This research has been undertaken on a group of 30 subjects: 15 students who constantly participate at Physical Education lessons, and 15 students who have medical exempts even since primary school until present days. All 30 subjects are enrolled in the Petroleum-Gas University from Ploiesti, and, at least theoretically, have the same level of instruction.

3.2. ***Research methods*:**

Bibliographic study method; Observation method; Investigation method (conversation, enquiry, questionnaire – lexical fund, Lf scale, etc.); Statistical-mathematic method; Graphical method.

3.3. ***Research purpose***

The purpose of this research was to emphasize the fact that the lexical fund presupposes a rigorous mental organisation "…and the conscious regulation of motric acts – kinaesthetic-visual-sound" (Stănescu M. 2002, p. 38), due to the fact that writing some of the words does not represent "only a simple graphical transcription of language" (Stănescu M. 2002, p. 38), of some words which start with a given prefix, but they represent "a complex and intelligent motric act" (Stănescu M. 2002, p. 38), closely connected with the individual's creativity and physical activity, developed within an organised environment.

4. Research content

People who regularly participate at motric activities, have a better development "of psycho-motricity and refined motricity, an increased level of postural stability, control and muscle coordination… write quickly and do not get tired." (Stănescu M. 2000, p. 38, 43). We often realize that they are people who are able to perform complex physical actions within motion and sports games and approach school activities more easily. Starting from this concept, we stopped at the evaluation of the lexical fund richness, and their capacity of making lexical associations. Each of them addressed a different dimension of the individual's creative power, of testing their inactive knowledge package, of the manner in which this creative dimension is influenced by the participation or lack of it at physical activities within lessons of Physical Education. "If we are interested in something we will work towards meeting the interest in this area. ...Here the willpower adjusts the behaviour so the individual lowers the level of internal tension. These emotions play an important role in this process" (Vasile C., 2011, p. 79).

We have to remind an important aspect – creative capacity may be tested through various manners which correspond to different stimulate. One can use tests of: lexical association – A1; divergent thought – scale Dt; visual creativity – Scale Vc; free association – Scale Fa, etc. For this reason, we have designed a creativity test named Lexical Fund – Scale Lf, also used by Horst H. S., in the year 2000, described in *Personality Tests. Profiles and*

Personality Types. Complete Tests and Exercises. Analyses and Evaluations. 400 Questions. This paper is the beginning of a much wider study, very complex, which starts the argument of creative capacity with the Lexical Fund test (Scale Lf), composed of three diagrams. Each diagram had 30 empty spaces, which the subjects had to complete with a word starting with two given letters. For example, the prefix for the first diagram was *re* and words could be repeated; the prefix for the second diagram was *br*, the word written – *brimstone*, the prefix given for the third diagram was *st,* and the word written was *status,* as the length of the word did not matter, but only the number of written words. The given time for each form was one minute. The evaluation started by dividing results (number of written words) to 1.5, and from this calculus the maximum number of points had to be 60.

Table 1 Registered indicators for the lexical fund of students participating at Physical Education lessons each week (Scale LF)

No. Students (S)	**Lexical diagram No. 1 No. of registered words/30 seconds starting with *re* and their percentage**	**Lexical diagram No. 2 No. of registered words/30 seconds starting with *br* and their percentage**	**Lexical diagram No. 3 No. of registered words/30 seconds starting with *st* and their percentage**
15	1 S.= 5 words – 6.67% 2 S.= 6 words -13.34% 1 S.= 7 words -6.67% 5 S.= 8 words - 33.34 4 S.= 9 words -26.64 2 S.= 11 words -13.34%	4 S.= 4 words - 26,66 % 3 S.= 5 words -20% 4 S.= 6 words - 26.66 1 S.= 7 words - 6.68% 3 S.= 9 words - 20%	1 S.= 4 words - 6.67% 1 S.= 5 words - 6.66% 2 S.= 6 words - 13.33% 1 S.= 7 words - 6.67% 3 S.= 8 words - 20% 3 S.= 10 words - 20% 1S.= 11 words - 6.67% 1S.= 12 words - 6.67% 2S.= 13 words - 13.33%
Minimum/ maximum recorded score	Minimum= 5 words – of 30 possible – 16.67% Maximum= 11 words – of 30 possible – 36.67%	Minimum= 4 words – of 30 possible – 6.67% Maximum= 9 words – of 30 possible – 30%	Minimum= 4 words – of 30 possible – 13.30% Maximum = 13 words – of 30 possible – 43.33 %

Table 2 Registered indicators for the lexical fund of students with medical exempts (Scale LF)

No. Students (S)	**Lexical diagram No. 1 No. of registered words/30 seconds starting with *re* and their percentage**	**Lexical diagram No. 2 No. of registered words/30 seconds starting with *br* and their percentage**	**Lexical diagram No. 3 No. of registered words/30 seconds starting with *st* and their percentage**
15	2 S.= 4 words - 13.34% 1S.= 5 words - 6.67% 1 S.= 6 words -6.67% 4 S.= 7 words - 33.34 4 S.= 8 words -26.64 3 S.= 9 words -13.34%	1 S.= 2 words - 6.67% 2S.= 3 words - 13.34% 1 S.= 4 words - 6.67% 3 S.= 5 words -20% 4 S.= 6 words - 26.65 4 S.= 7 words - 20%	3 S.= 3 words - 20% 3 S.= 4 words - 6.66% 1 S.= 5 words - 6.66% 1 S.= 6 words - 13.33% 2 S.= 7 words - 6.67% 2 S.= 8 words - 20% 1S.= 9 words - 20% 2S.= 10 words - 6.67%
Minimum/ maximum recorded score	Minimum= 4 words – of 30 possible – 13.33% Maximum= 9 words – of 30 possible – 30%	Minimum= 2 words – of 30 possible – 6.67% Maximum= 7 words – of 30 possible – 23.33 %	Minimum= 3 words – of 30 possible – 10% Maximum= 10 words – of 30 possible – 33.33%

The registration for our evaluation of the students' lexical fund was made under the form of tables: No. 1 - students who participate each week at the Physical Education lessons; No. 2 - students who have medical exempts. Results were expressed in number of written words and percentage, with maximum and minimum scores for each diagram.

Analyzing the data according to Tables No. 1 and 2, we may observe that the maximum number of words recorded was for diagram 3 - 43.33 %, namely 13 words from 30 possible - for students who constantly participate at Physical Education lessons, and 33.33 % for students who have medical exempts, meaning only 10 words from 30 possible, thus confirming the hypothesis according to which the lexical fund presupposes a rigorous mental organisation and "a conscious regulation of motric acts". In order to work with the recorded data, we used the statistical-mathematical method; in order to characterize groups with a single value, we used the calculus method, according to Tables No. 3 and 4, and we constructed our evaluation according to the Lexical Fund Scale (LFS).

Table 3 Statistical indicators for creativity evaluation on the Lexical Fund Scale (LFS) – richness of the lexical fund for participating at Physical Education lessons each week

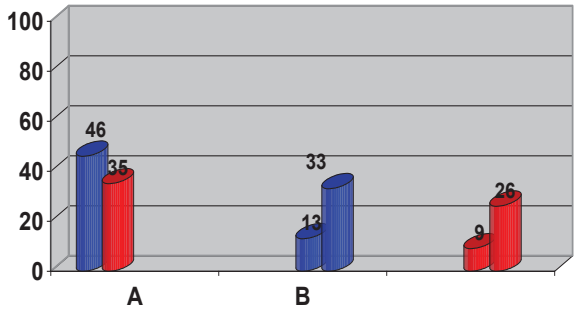
Registered indicators	Lexical diagram No. 1 No. of registered words/30 seconds starting with *re*	Lexical diagram No. 2 No. of registered words/30 seconds starting with *br*	Lexical diagram No. 3 No. of registered words/30 seconds starting with *st*
No. of students 15	15 students= 107 words	15 students= 71 words	15 students= words
Average/ $\bar{x}$	$\bar{x}$ **= 7.13** words/**student**	$\bar{x}$ **= 4.73** words/**student**	$\bar{x}$ **= 8.73** words/**student**
Evaluation/ LFS	Total minimum diagram No. 1 (5 points) + Total minimum diagram No. 2 (4 points) + Total minim diagram No. 3 (4 points)= 13 points /minimum Total maxim diagram No. 1 (11 points) + Total maxim diagram No. 2 (9 points) + Total maxim diagram No. 3 (13 points)= 33 points/maximum		
Calculus Total LFS	**13 points/minimum +33 points/maximum= 46 POINTS**		

Table 4 Statistical indicators for creativity evaluation on the Lexical Fund Scale (LFS) – richness of the lexical fund students with medical exempts

Registered indicators	**Lexical diagram No. 1** **No. of registered words/30 seconds starting with *re***	**Lexical diagram No. 2** **No. of registered words/30 seconds starting with *br***	**Lexical diagram No. 3** **No. of registered words/30 seconds starting with *st***
No. of students 15	15 students= 106 words	15 students= 79 words	15 students= 82 words
Average/ $\bar{x}$	$\bar{x}$ =7.06 words/ student	$\bar{x}$ =5.26 words/ student	$\bar{x}$ = 5.46 words/ student
Evaluation/ S.LF.	Total minimum diagram No. 1 (4 points) + Total minimum diagram No. 2 (2 points) + Total minim diagram No. 3 (3 points)= 9 points /minimum Total maxim diagram No. 1 (9 points) + Total maxim diagram No. 2 (7 points) + Total maxim diagram No. 3 (10 points)= 26 points/maxuimum		
Calculus Total S.LF.	**9 points/minimum +26 points/maximum= 35 POINTS**		

According to the evaluation form, values between 41-60 point reflects and excellent richness of the lexical fund. Students who constantly participate at Physical Education lessons scored 46 points, proving that they have lexical fluency, velocity in writing words on paper, an increased capacity of updating information already existing in their memory. "This process presupposes, in a practical manner, the activation of two abilities simultaneous, and not one after the other" (Horst H. S., 2000, p.118). These abilities have been extra-trained through motric activities (sports and motion games), and perfected through the didactic instruction process. From the recording of the statistical

indicators in Tables No. 3 and 4 and Graph No.1, for the evaluation of creativity on the Lexical Fund Scale, we may observe the richness of the subjects' lexical fund, represented by the 46 points scored by students who constantly participate at Physical Education lessons, as compared to the medium score of 35 points (medium qualifier), recorded by students who have medical exempts. As a consequence, significant differences between the two groups are emphasized, as well as the need of supplementary training with students who obtained a medium qualifier.



Graph 1 Statistical indicators recorded for creativity evaluation on the Lexical Fund Scale (LFS) – for the two groups of students

CAPTION	
A - Evaluation on the Lexical Fund Scale (LFS) – for the two groups of students –Total scored points:	**B -** Evaluation on the Lexical Fund Scale (LFS) – for the two groups of students –Minimum and maximum of scored points:
Total scored points – for students participating at Physical Education lessons (P.E.)	Minimum and maximum of scored points for students participating at Physical Education lessons (P.E.)
Total scored points – for students with medical exempts from Physical Education lessons (S.M.)	Minimum and maximum of scored points for students with medical exempts from Physical Education lessons (S.M.)

According to results obtained by students who constantly participate at Physical Education lessons have a more developed creative capacity, they can easily make lexical associations, combinations, and all these with velocity and easy, as compared to the same group, who, for certain reasons, have medical exempts. All these results confirm the hypothesis according to which motric activities can develop creativity on a lifetime perspective.

Conclusions

- Creativity, according to results, is the recombination of concepts that have existed or already exist in the human mind, hidden in the subconscious, and that may be influenced by motric activities through the means of the motric chain which is derived from the motric act, according to one's necessities.
- Creativity seems to be developed for people who constantly participate at motric games, according to the evaluation form (Tables No 3, 4 and Graph No. 1).
- Students who constantly participate at Physical Education lessons, have "two abilities simultaneous, and not one after the other" (Horst H. S., 2000, p.118), thus they have a more developed creative capacity, proving that they have lexical fluency, velocity in writing words on paper, an increased capacity of updating information already existing in their memory (see data from Tables 1, 2, 3, 4 and Graph No. 1). All these results confirm the hypothesis according to which motric activities can develop creativity on a lifetime perspective.
- People who constantly participate at Physical Education lessons have a more developed creative capacity, they can easily make lexical associations, combinations, and all these with velocity and easy, as compared to

the same group, who, for certain reasons, have medical exempts, thus confirming the research hypothesis (see data from Tables 1, 2, 3, 4 and Graph No. 1).

- From the recording of the statistical indicators in Tables No. 3 and 4 and Graph No.1, for the evaluation of creativity on the Lexical Fund Scale, we may observe the richness of the subjects' lexical fund, from students who constantly participate at Physical Education lessons, as compared to the medium score recorded by students who have medical exempts.
- The proposed theme is new, opening new research perspectives, which is a challenge for field specialists, and the statement that motric activities stimulates creativity, cherishing it, and it represents a mean of continuous lifetime training-teaching, thus confirming the hypothesis. For this reason, we recommend Physical Education to be taught even since kindergarten.

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